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| 09/129,603 | 08/05/98 | ISHIWATA T | 766-25 |

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| EXAMINER | |
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| **ART UNIT** | **PAPER NUMBER** |
| 1635 | 19 |

**DATE MAILED:** 03/14/01

**Please find below and/or attached an Office communication concerning this application or proceeding.**

**Commissioner of Patents and Trademarks**

| Office Action Summary | Application No. 09/129,603 | Applicant(s) ISHIWATA ET AL. | |
|---|---|---|---|
| | Examiner Karen A. Lacourciere | Art Unit 1635 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *28 December 2000* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *2-11 and 23-28* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *2-11 and 23-28* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claims _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved.

12)☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. § 119**

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

**Attachment(s)**

15) ☒ Notice of References Cited (PTO-892)
16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
18) ☒ Interview Summary (PTO-413) Paper No(s). *19* .
19) ☐ Notice of Informal Patent Application (PTO-152)
20) ☐ Other: .

FILE



## DETAILED ACTION

The rejection of claims 2-11 and 22-29 set forth in the prior Office action (mailed 08-16-00) is withdrawn, based on the amendments filed on 12-28-00.

### *New Grounds of Rejection*

### *Claim Objections*

1. Claim 10 is objected to because of the following informalities: in line 5 of claim 10 there is no article before the phrase "15 mer portion". This objection would be obviated by insertion of the word "a" before the phrase "15 mer portion" in line 5 of the claim. Claim 10 is further objected to because the word "oligonucleotides" is misspelt as "oligonuleotides" in the 20th line of the claim. Appropriate correction is required.

### *Claim Rejections - 35 USC § 101*

2. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. Claim 2 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claim 2 is drawn to a nucleotide sequence as it may exist in a cell as a product of nature and, therefore, is considered to be non-statutory subject matter. This rejection would be obviated if claim 2 is amended to read "An isolated DNA".

4. Claim 7 is rejected under 35 U.S.C. § 101 because the claimed invention lacks patentable utility due to its not being supported by either specific and/or substantial utility or a well established utility.

Claim 7 is drawn to a process of producing a protein comprising an amino acid sequence of SEQ ID NO:2. This process is not supported by either a specific and/or substantial utility or a well established utility because it is a method of making a protein which does not have either a specific and/or substantial utility or well established utility.

The specification discloses a polynucleotide (SEQ ID NO:1) which is upregulated in leukocytes of patients with an IgA nephropathy. SEQ ID NO:2 is the sequence of a polypeptide which has been translated from one possible open reading frame of SEQ ID NO:1. The specification does not demonstrate that SEQ ID NO:2 is a translation of the open reading frame of SEQ ID NO:1 expressed in human cells, it does not demonstrate that SEQ ID NO:2 or any other polypeptide is overexpressed in cells of IgA nephropathy patients, nor does it provide any other function of a polypeptide of SEQ ID NO:2. The specification asserts that a polypeptide of SEQ ID NO:2 can be utilized to make an antibody to SEQ ID NO:2 and that said antibody can be

used to detect expression of a polypeptide of SEQ ID NO:2 and can be used as a diagnostic or a therapeutic agent. This is a non-specific use that is applicable proteins in general and not particular or specific to the protein being claimed. A starting material that can only be used to produce a final product does not have substantial asserted utility in those instances where the final product is not supported by a specific and substantial utility. In this case the antibodies that are to be produced as final products using a protein of SEQ ID NO:2 do not have specific and substantial utilities. SEQ ID NO:1 has utility based on the demonstration that SEQ ID NO:1 is selectively upregulated in leukocytes of IgA nephropathy patients, however, there is no indication that SEQ ID NO:1 expresses a protein of SEQ ID NO:2 or that a protein of SEQ ID NO:2 is expressed in IgA nephropathy patient's cells at a level higher than that of a normal patient's cells. As such, neither an antibody produced using SEQ ID NO:2 nor a protein of SEQ ID NO:2 would have utility for diagnostic methods or therapeutics for an IgA nephropathy. Neither the specification as filed nor any art of record discloses or suggests any property or activity for the a protein of SEQ ID NO:2 such that another non-asserted utility would be well established for the compounds. Therefore, a process for producing a polypeptide of SEQ ID NO:2 is not supported by either a specific and/or substantial utility or a well established utility.

***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claim 7 is also rejected under 35 U.S.C. § 112, first paragraph. Specifically, since the claimed invention is not supported by either a specific and substantial asserted utility or a well established utility for the reasons set forth above, one skilled in the art would not know how to use the claimed invention.

7. Claims 2, 5, 6, 8-11 and 23-28 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for compositions of a nucleic acid comprising SEQ ID NO:1 or sequences which hybridize to SEQ ID NO:1 and diagnostic methods using said nucleic acids, does not reasonably provide enablement for compositions comprising a nucleic acid which encodes a polypeptide of SEQ ID NO:2 or sequences which hybridize to a nucleic acid which encodes a polypeptide of SEQ ID NO:2 and diagnostic methods using said nucleic acids. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention commensurate in scope with these claims.

The following factors have been considered in formulating this rejection (*In re Wands*, 858F.2d 731, 8 USPQ2d 1400 (Fed. Cir. 1988)): the breadth of the claims, the nature of the invention, the state of the prior art, the relative skill of those in the art, the predictability or

unpredictability of the art, the amount of direction or guidance presented, the presence or absence of working examples of the invention and the quantity of experimentation necessary.

Claims 2, 5, 6, 8-11 and 23-28 are drawn to nucleic acids which encode a polypeptide of SEQ ID NO:2, a nucleic acid of SEQ ID NO:1, nucleic acids which hybridize to SEQ ID NO:1, vectors and host cells comprising such; nucleic acids comprising a 15 mer portion of a nucleic acid encoding SEQ ID NO:2, a nucleic acid of SEQ ID NO:1, or nucleic acids which hybridize to SEQ ID NO:1 in a diagnostically or pharmaceutically acceptable carrier; diagnostic methods for detecting an IgA nephropathy using a 15 mer portion of a nucleic acid which encodes a polypeptide of SEQ ID NO:2, a nucleic acid of SEQ ID NO:1, or a nucleic acid which hybridize to SEQ ID NO:1; and a 40 mer portion of a nucleic acid which encodes a polypeptide of SEQ ID NO:2, a nucleic acid of SEQ ID NO:1, or a nucleic acid which hybridizes to SEQ ID NO:1.

The specification demonstrates that elevated levels of mRNA of SEQ ID NO:1 can be selectively detected in leukocytes from IgA nephropathy patients. The specification does not demonstrate that SEQ ID NO:1 expresses a polypeptide of SEQ ID NO:2 in IgA nephropathy patients, nor that any nucleic acid expressing a polypeptide of SEQ ID NO:2, besides SEQ ID NO:1, is expressed in cells of an IgA nephropathy patient at an abnormal level, or even if a nucleic acid encoding SEQ ID NO:2 (besides SEQ ID NO:1) is even expressed in any cells. Although the specification correlates overexpression of an mRNA of SEQ ID NO:1 with an IgA nephropathy, there is no correlation between a polypeptide of SEQ ID NO:2 and an IgA nephropathy. There is no evidence that a polypeptide of SEQ ID NO:2 is ever expressed in cells, nor that generally any

nucleic acid encoding a polypeptide of SEQ ID NO:2 correlates with an IgA nephropathy or any other disorder. To determine whether any mRNA encoding a polypeptide of SEQ ID NO:2 (besides SEQ ID NO:1) is expressed in tissues and, if expressed, whether or not the expression level of said mRNA correlates with an IgA nephropathy, one skilled in the art would need to undergo undue trial and error experimentation, beyond the teachings of the instant specification.

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 10, 11 and 25-28 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 10 and 11 are indefinite because the methods recited do not seem to related to the goal set forth in the preamble of each method. Claims 10 and 11 are drawn to diagnostic methods for an IgA nephropathy, as set forth in the preamble, however the steps of each of the claimed methods actually amount to a general method of detecting a nucleic acid sequence. SEQ ID NO:1 has been shown to be expressed in many human tissues, without any correlation to an IgA nephropathy. To be a diagnostic method for IgA nephropathy, claims 10 and 11 would need to reflect that the mRNA detection occurs in patients tissues and that a diagnosis is based on

comparison between a normal tissue and a tested tissue, with an elevated level of mRNA in tested tissue resulting in a positive diagnosis.

Claim 10 is further indefinite because it recites two steps which are identical, both steps reciting "selecting an oligonucleotide comprising a 15 mer portion of a nucleotide sequence". It is suggested that claim 10 be amended to distinguish the two selected 15 mer nucleotides.

Claims 25 and 26 are indefinite due to the recitation "5'-end side nucleotide sequence". The metes and bounds of the term "5'-end side nucleotide sequence" are unclear because there is nothing in the specification which differentiates where the 5'-end of the sequences begin and end.

Claims 27 and 28 are indefinite due to the recitation "3'-end side nucleotide sequence". The metes and bounds of the term "3'-end side nucleotide sequence" are unclear because there is nothing in the specification which differentiates where the 3'-end of the sequences begin and end.

Claims 25-28 are indefinite due to the recitation "corresponds to". the metes and bounds of the term "corresponds to" are unclear, as to how a nucleic acid "corresponds to" another sequence or how a nucleic acid can be changed and yet still "correspond to" another sequence. For example, does it need to be the exact same sequence, the exact complement, can there be base substitutions and how many are acceptable? Due to the indefinite nature of the term

"corresponds to" one skilled in the art would not know what nucleic acids would be encompassed by claims 25-28.

***Claim Rejections - 35 USC § 102***

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless --
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 8 and 23 are rejected under 35 U.S.C. 102(b) as being anticipated by Matsubara et al.

Matsubara et al. disclose polynucleotides which comprise a 40 mer portion of a nucleotide sequence of SEQ ID NO:1. Matsubara et al. disclose using said nucleotide sequence as a probe for a cellular nucleic acid sequence, necessitating that the nucleic acid be in a diagnostically acceptable carrier. Therefore, Matsubara et al. anticipates claims 8 and 23.

Claims 8 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Hillier et al.

Hillier et al. disclose EST sequences which comprise a 24 mer oligonucleotide sequence which binds to base pairs 1079-1102 of SEQ ID NO:1, which encodes the amino acid sequence of SEQ ID NO:2 (see, for example, Accession No. T67179, enclosed in the prior Office action,

mailed 08-16-00). This sequence is listed as unpublished, but is disclosed as used in ligation reactions and restriction enzyme assays. The buffers used in ligation and restriction digests are diagnostically acceptable, and well known in the art. Therefore, Hillier et all (Assession No. T67179) anticipates claims 8 and 9.

Claims 24 and 28 are rejected under 35 U.S.C. 102(b) as being anticipated by Hillier et al. (Assession number N21024).

Hillier et al. (assession number N21024) disclose a nucleotide sequence comprising a 40 mer portion of SEQ ID NO:1 (see attached alignment). Given the indefinite nature of the terms "3'-end side" (see the rejection under 35 U.S.C. 112, second paragraph) these sequences would be considered to "correspond to" a "3'-end side".Therefore, Hillier et al. anticipates claims 24 and 28.

Claims 25 and 27 are rejected under 35 U.S.C. 102(b) as being anticipated by Hillier et al. (Assession numbers T55131 and T46955, see alignments mailed with the prior Office action, mailed 08-16-00).

Hillier et al. disclose a 26 mer DNA probe which binds to the nucleotide sequence of SEQ ID NO:1, (Assession number T55131). Hillier et al. disclose a 22 mer DNA probe which binds to the nucleotide sequence of SEQ ID NO:1 (Assession number T46955). Hillier et al. (Genome Research) disclose using their nucleic acids in reactions including PCR and sequencing, which

would require that their nucleic acids be in a PCR or sequencing buffer. PCR and sequencing buffers would be encompassed by the term "diagnostically acceptable buffers". Given the indefinite nature of the terms "3'-end side" and "5'-end side" (see the rejection under 35 U.S.C. 112, second paragraph) these sequences would be considered to "correspond to" a "3'-end side"or "5'-end side" . Therefore, Hillier et al. anticipates claims 25 and 27.

***Response to Arguments***

10. In response to the rejection of claims 8, 9, 25 and 27 Applicant argues that Hillier et al. do not disclose their nucleotide sequences in a diagnostically or pharmaceutically acceptable carrier. This argument has not been found to be persuasive because the scope of "diagnostically or pharmaceutically acceptable carrier" is very broad and would encompass the buffers disclosed by Hillier et al. For example, Hillier et al. disclose their nucleotide sequences in buffers used for sequencing and PCR, these buffer are diagnostically acceptable buffers (see Hillier et al. Genome Research). Further, Hillier et al. disclose using their unpublished nucleic acids in ligation and restriction enzyme assays (see citations enclosed in the prior Office action mailed 08-16-00), which would necessitate that the nucleic acids be in ligation and restriction enzyme buffers, which are well known in the art and would be encompassed by the term "diagnostically acceptable buffer".

***Conclusion***

Any inquiry concerning this communication should be directed to Karen A. Lacourciere at telephone number (703)308-7523.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John LeGuyader can be reached at (703) 308-0447. The fax phone number for this Group is (703) 308-4242.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0196.

Karen A. Lacourciere
March 12, 2001

ANDREW WANG
PATENT EXAMINER
TC1600